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*24/30/11/24*

Print Date: 28/11/2024

- Purchase Copy
- Planning Copy

S.O. NO	Date
Ref No	Section HY Fabricati

PR No.	Date
K-24-PR-00870	28/11/2024
JOB NO.	BOM NO.
CAPITAL	

Remarks:

Hold  Passed

Sl.	Item Code	Cat	HSN/SAC Code	Description/Drawing No Remarks	<--Procu.--> Qty UOM	<-Factory-> Qty UOM	Delivery Within <---Schedule--->	REM
1	7804020881	CG	85176290	CNC CUTTING MACHINE, Drg.No.:*, Required for Smooth & hassle free activities of Production dept. Detail scope of work attached as per Annexure-A	1.000 NO	1.000 NO	28/11/24 - 28/11/24	P/E

REM: P = Procurement S = Sub-Contract

I = Existing Item Rate; R = Rate Contract; E = Enquiry; Z = Own Make Item (Proc. Not Req.)

NOTE:-

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*Sarkar*

Indentor

7874/ARGHA SARKAR

*28/11/24*

*[Signature]*

*Buehler*

Authorised Signatory

# SCOPE OF WORK AND TECHNICAL SPECIFICATIONS OF CNC CUTTING MACHINE

ANNEXURE-A

AYCL requirement

1	Track length	14 mtr
2	Working length	12.5 Mtr.
3	Track width	4.5 Mtr
4	Working width	3.5 Mtr
5	Effective Cutting size of plate	3.5 Mtr. x 12.5 Mtr.
6	Transversing Speed	Min. 25 meter per min speed
7	Torch Assembly	The machine should have 1 Plasma cutting torch fitted on gantry. The machine should have 1 Oxy-Acetylene torch fitted on gantry
8	Accuracies for Plasma Cutting	The oxy acetelene torch is manually tilting arrangement of +/- 45 degree ± 1.0 mm maximum
9	Cutting Capacity	For Plasma Cutting 3 mm to 40 mm of Carbon Steel of DMR 249A & B Special Steel material, AH36, AH40, D40S, IS2062 grades. Stainless-Steel from 3mm to 25 mm For Oxy- Acetylene - upto 100 mm of IS2062
10	Types of gases for Plasma	plasma/shield formation : O2/Air, Air/Air
11	Marking Requirement	Should be capable to be used as marker torch.
12	Gas for Marking	Ar, N2,Air
13	Working Bed/Water Table:	<ul style="list-style-type: none"> <li>i. Working bed shall be in AYCL Scope.</li> <li>Supplier shall provide suitable detailed drawing for fabrication of the cutting table by AYCL within 2 weeks of placement of PO.</li> <li>ii. CNC machine shall be capable of working on 12.5 M x 3.5M (Length x width).</li> <li>iii. All cutting/marketing/aligning torches should be able to cover this cutting area of 12 meters x 3.5 meters.</li> <li>iv. An independent control of water level on the water table shall be provided to pneumatically flood or drain the cutting table during plasma cutting and same is to be integrated on the operator console/separate console with the help of switches.</li> </ul>
14	CNC Machine Controller	<ul style="list-style-type: none"> <li>i. Latest compatible CNC controller of reputed make with LED touch screen display (minimum size 15.6") with 2 USB port (one for pen drive for loading files), LAN port(for cutting data sharing from remote), keyboard and mouse.</li> <li>ii. CNC controller must have minimum 8GB RAM and hard disk of minimum 500 GB capacity.</li> <li>iii. With minimum i5 processor and Windows 10 or latest operating System.</li> <li>iv. Facility for loading the CNC files to the machine through wireless browser.</li> <li>v. It should have 100%touch screen operation.</li> <li>vi. On control panel, preferably, there should be 3-4 switches for direct access to important /emergency functions and water table operations.</li> <li>vii. The controller should be accessible for remote diagnostic or virtual service through customer provided firewall. The supplier should be able to remotely support from anywhere in the world.</li> <li>viii. The controller should be able to control the torch height through live axis controls.</li> <li>ix. It should have consumable monitoring system. The controller should always remain as master for all control functions (viz. plasma/printing/ marking etc).</li> <li>x. The controller should be Eckleermann/Hypertherm make</li> <li>xi. Servo motor drive should have oil &amp; water protection.</li> <li>xii. Servo motor should have a. velocity control mood b. build in holding brake c. dynamic brake</li> <li>xiii. Drive must have a. front panel for auto gain tuning mood &amp; aux. function mode &amp; parameter set up mode. b. Surge absorber must be there in the controller panel.</li> </ul>
15	Dedicated Air Compressor & Air receiver tank	Dedicated Air Compressor & Air receiver tank /reservoir to be provided and shall be in scope of supplier. Make of Air Compressors shall be ELGI /Atlas Copco /Kirlosker/ or better
16	Plasma Power Source:	200A of make Hypertherm
17	Anti-Collision System	Machine to be equipped with anti-collision systems for plasma cutting heads
18	Software compatibility	<ul style="list-style-type: none"> <li>1, Compatible to AVEVA, Tribon IV , Foran, and ACTCUT software, solidworks,/ CATIA 3D. Post processor software is required to convert the AVEVA, Tribon IV , Foran to machine specific NC/nesting files shall be in scope of supplier.</li> <li>iii. The machine shall have latest IoT features for receiving the design input directly into the machine through LAN connection. Suitable pen drive/dongle with nesting software shall also be provided for transfer of data between AYCL design department and the machine.</li> <li>iv. All software upgrades to be free of cost.</li> <li>v. In case of AutoCAD/ DXF/ CSV/ XML inputs, suitable post processor software shall be made available on computer/ machine controller to convert the inputs to machine suitable format.</li> <li>vi. Firm should provide required interface with Aveva Tribon and FORAN used by AYCL for nesting.</li> </ul>
19	Plate Alignment System	Laser point alignment system to be provided for alignment of plates with the CNC nesting.
20	Auto height sensing during cut/markng	Required during cutting / marking for bith plasma & oxy

21. Guarantee	The supplier/ manufacturer shall guarantee the CNC Plasma cutting machine and its accessories against damage or failure due to defects in design, material and / or workmanship for Twelve (12) months from the date of commissioning and final acceptance of machine at AYCL. Should such damage or failure occur within that period, the supplier/ manufacturer shall replace or repair the defective parts at his cost.
22. UPS for CNC machine	To be supplied for the controls and PC, display etc. Minimum 30 minutes backup required.
23. Machine diagnostics	The machine should be able to self-diagnose the faults and provide probable solutions to the breakdowns.
24. Ethernet facilities on machine	Machine should have Ethernet connectivity in order to load the nesting program on machine and for remote diagnostics.
25. Maintain optimum temperature for working of electronic circuits	Industrial air conditioners unit to be fitted on the machine to maintain machine cabinet /panel temperature for peak operating efficiency.
26. Data Capturing	To capture total plates cut per shift, based on No. of nesting cut with length of cut and length of marking for each shift, system shall have back up data for at least 6 month minimum. The cutting system shall be compatible with Industry 4.0 and IoT (Internet of Things) to have interaction with design, maintenance and production depts. The part items which cut from different nesting drawing shall be captured in excel format and extracted on daily/ weekly/ monthly basis along with other parameters required to meet Industry 4.0 and IoT (Internet of Things) requirements for productivity & maintenance improvements. The data should be able to be extracted over the ERP system for reporting and analysis.
27. Machine Log data	Machine should have facility to provide machine log indicating the start/stop time, machine downtime, type of machine faults/ errors, operator ID with storage facility for a period of 6 months.
28. Inspection And Testing	Manufacturer's shop tests and inspection shall be carried out in accordance with the manufacturer's standards and the requirements of the Rules and Regulations. Pre-dispatch inspection/FATS may be carried out directly by AYCL or through any of the inspection agencies engaged by AYCL. Necessary arrangements for the inspection shall be made by the supplier for the above. The cost of such inspections at supplier's premises shall be borne by AYCL.
29 Training	Training to be provided to the following AYCL personnel at AYCL works: a) Nominated design Personnel: To be trained for Compatibility issues with design software, system Administration of Design interface part. b) Nominated Maintenance Personnel (Mechanical & Electrical Persons) c) Nominated Production executive & Machine operators
30 Documentation	3 sets of following documents to be provided along with one soft copy: a) Operation manual. b) Maintenance manual c) As Built electrical drawings d) Plasma system manual e) Controller manual f) Plasma Marker Manual. g) Licensed CD'S/pen drives for CNC Software used on the Machine & the desk top computers. h) The manuals should indicate all circuit diagrams; gas hoses diagrams etc. for maintenance purposes. i) The manuals should also contain details about probable faults in the machine and its diagnostics/solutions.
31 Erection & Comissioning	The installation, comissioning in is vendor scope except Civil work. AYCL will arrange staying & fooding.
32 Make of CNC Machine	ProArc/Esab/Ador/Messer/Koike

Approval of High Power Technical Committee

- 1|Aksar Ali
- 2|Ujjwal Das
- 3|Kalyan Mondal
- 4|Indrajit Naskar

*AS* 21/11/24  
*AS* 21/11/24  
*Mkalyan* 21/11/24